

WHAT IS CLAIMED IS:

1. An electronic device comprising an electronic part, a heat radiating structure and a heat spreader,

5 wherein said heat radiating structure comprises a grading layer located between said electronic part and said heat spreader, said grading layer comprising a coefficient of thermal expansion varied such that it is substantially equal or approximate at its portion on the electronic part side to the coefficient of thermal expansion of said electronic part and such that it is substantially equal or approximate at its portion on the heat spreader side to the coefficient of thermal expansion of said heat spreader.

10 2. The electronic device according to Claim 1,
wherein said electronic part, said heat radiating structure and said heat spreader are joined with an adhesive or a solder.

15 3. The electronic device according to Claim 1,
wherein said heat spreader and said grading layer are joined by a diffused junction method.

4. An electronic device comprising:
a heat spreader joined to an electronic part, said heat spreader comprising a material having a coefficient of thermal expansion approximate to that of said electronic part,
20 wherein said electric part is cooled by transferring heat generated in said electric part to said heat spreader.

5. The electronic device according to Claim 4,
wherein said electronic part is comprised of silicon, and
wherein said heat spreader is comprised of nickel steel or aluminum nitride.

25 6. The electronic device according to Claim 4,
wherein said heat spreader is comprised of invar.

7. The electronic device according to Claim 4,
wherein said electronic device comprises graphite located between said electronic
part and said heat spreader.

8. The electronic device according to Claim 7,
wherein said electronic part, said heat spreader and said graphite are joined with an
adhesive or a solder.

9. The electronic device according to Claim 7,
wherein said heat spreader and said graphite are joined by a diffused junction method.

10. A heat radiating structure for cooling an electronic device comprising:
a heat spreader with a chamber formed in said heat spreader comprised of a sealed
structure encapsulating a condensable fluid therein which can repeatedly evaporate and
condense to transport heat.

11. A heat radiating structure for cooling an electronic device comprising: a heat
spreader,
wherein said heat spreader comprises aluminum and further comprises a lubricating
member buried in one face of said heat spreader.

12. The heat radiating structure according to Claim 11,
wherein said face is anodized to form fine cracks therein, which cracks are filled with
molybdenum sulfide comprised as said lubricating member.

13. A heat radiating structure for cooling an electronic device comprising:
a grading layer comprising a coefficient of thermal expansion varied such that it is
substantially equal or approximate at one face to the coefficient of thermal expansion of an
electronic part and such that it is substantially equal or approximate at the opposite face to
the coefficient of thermal expansion of a heat spreader.

14. An electronic device comprising an electronic part, a heat radiating structure and

a heat spreader, wherein

said spreader comprises a chamber formed in said heat spreader comprised of a sealed structure encapsulating a condensable fluid therein which can repeatedly evaporate and condensate to transport heat.

5 15. An electronic device comprising an electronic part, a heat radiating structure and a heat spreader,

wherein said heat spreader comprises of aluminum and further comprises a lubricating member buried in the face of said heat spreader on the side of said electronic part.

10 16. The electronic device according to Claim 15,
wherein said face is anodized to form fine cracks therein, which cracks are filled with molybdenum sulfide comprised as said lubricating member.

17. The electronic device according to Claim 6, wherein said invar comprises 0.4% Mn, 0.2% C, 36% Ni, and the remainder Fe.

15 18. The electronic device according to Claim 1, wherein said grading layer comprises laminated sheets.

19. The heat radiating structure according to Claim 13, wherein said grading layer comprises laminated sheets.

20 20. The electronic device according to Claim 1, wherein said grading layer comprises a composite material of a plurality of materials having the composition of said plurality of materials changed in a thickness direction.

21. The heat radiating structure of Claim 13, wherein said grading layer comprises a composite material of a plurality of materials having the composition of said plurality of materials changed in a thickness direction.